UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

NOV 30 2011

Mr. Ken Taylor
SC Dept. of Health & Environmental Control
2600 Bull Street
Columbia, SC 29201

Subject: GAO 148 – Woodruff Vermiculite Site
Woodruff, South Carolina

Dear Mr. Taylor:

The U.S. Environmental Protection Agency's Emergency Response and Removal Branch (ERRB) conducted a Removal Site Evaluation (RSE) at the above referenced site for potential removal action eligibility under the National Contingency Plan (NCP).

Based on the information collected during the RSE, the On Scene Coordinator (OSC) recommends this site be given a no further action for removal eligibility under EPA's Superfund Removal Program. (See enclosed RSE memo)

This determination does not preclude any other investigation or response action by other parties which may still be appropriate for this site. Should site conditions change or additional information become available, ERRB will re-evaluate this site as necessary.

Should you have any questions concerning ERRB's determination, please contact Terry Stilman, OSC, at (404) 562-8748, or Jim McGuire, Chief of Removal Operations Section, at (404) 562-8911.

Sincerely,

A. Shane Hitchcock, Chief
Emergency Response & Removal Branch

Enclosure

cc: Dawn Taylor
Tony Moore
Jim McGuire
Terry Stilman
Kerri Sanders
Timothy Neal
Debbie Jourdan

U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
GAO 148 – Woodruff Vermiculite Site POLREP

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV

Subject: POLREP #1
Removal Site Evaluation
GAO 148 – Woodruff Vermiculite Site
13101 Highway 221
Woodruff, SC 298388

Latitude: 34.697746 N
Longitude: -81.998782 W

To: Jim McGuire, USEPA R4 ERRB
From: Terry Stilman, On-Scene Coordinator
Date: 11/28/2011
Reporting Period: 12/02/2009 - 11/03/2011

1. Introduction

Site Number: B409
Response Authority: CERCLA
Response Type: Time-Critical
Response Lead: EPA
Incident Category: Removal Assessment
NPL Status: Non NPL

1.1 Site Description

The GAO 148 site encompasses an ongoing vermiculite processing facility, Palmetto Vermiculite, Inc., that may have received vermiculite from the W. R. Grace Libby, Montana mine. Presently, an ongoing vermiculite processing facility exists on-site, including: offices; vermiculite exfoliation furnaces, hoppers, conveyors, silos, and related machinery; several large, covered storage bays with concentrated vermiculite from various sources; and other machinery and equipment. Products sold by Palmetto Vermiculite, Inc. include exfoliated vermiculite, cement, gravel, and sand. The building complex on-site has exterior walls that cover part but not all the perimeter of the

complex, which render large portions of the interior of the complex susceptible to the influence of wind and weather to varying degrees. The remaining portion of the property occupied by Palmetto Vermiculite, Inc. is open and consists of bare ground, gravel-covered areas, and areas covered in low vegetation. Semi-trailers are stored in some of the outdoor areas.

Information from EPA's and the GAO's files indicate that the GAO 148 site is the location of a former and currently-operating vermiculite exfoliation facility that processes vermiculite obtained from both domestic and foreign sources. The facility reportedly began operations as early as 1964. The vermiculite exfoliation facility has reportedly purchased vermiculite ore from suppliers located in South Carolina, Virginia, Georgia, New Jersey, South Africa, and China.

While the Site was listed on the GAO list of suspected facilities to have processed Libby Vermiculite, EPA's database did not contain any specific records indicating that vermiculite ore from the W. R. Grace vermiculite mine in Libby, Montana was shipped to the GAO 148 site. Palmetto Vermiculite, Inc. also indicated that they did not purchase, receive or process any ore from the Libby Mine.

1.2 Preliminary Removal Assessment/Removal Site Inspection Results

According to EPA's file, samples of various ores, waste rock, and finished product were collected at the site by EPA Region 4 on June 6, 2001; and the samples were submitted for analysis for asbestos by polarized light microscopy (PLM). The EPA report indicated that asbestos was not detected in the samples collected from the GAO 148 site, although the laboratory's results attached to the EPA report indicated that "Mineral Fibers of Concern" were identified in two of the samples; a footnote in the laboratory's results states that: "Mineral Fibers of Concern represent a newer class of amphibole categories that has been identified by the USEPA Region 8 in conjunction with the Libby, MT project. These include richterite and winchite". Based on this information, a removal site evaluation was performed.

The GAO 148 site is located about 25 miles southeast of downtown Greenville, South Carolina, in a mostly undeveloped rural area of mixed agricultural, industrial, commercial, and residential use. The GAO 148 site is bordered to the southwest by U.S. Highway 221 (Laurens Road) and a CSX railroad line. To the northwest and northeast the site is bordered by forest and areas of low vegetation. The site is bordered to the southeast by industrial and commercial businesses. Residential areas exist near the site in most directions, and the nearest residence lies less than 650 feet southeast.

2.1 Removal Site Evaluation

On December 2 and 3, 2009, Tetra Tech START and EPA conducted activity based sampling (ABS) and bulk material sampling at the GAO 148 site. In addition, Tetra Tech START and EPA conducted a follow-up site visit on March 21, 2011.

ACTIVITY-BASED AIR AND BULK MATERIAL SAMPLING

ABS air sampling was conducted at the GAO 148 site to simulate human exposure to asbestos during typical site activities. Three rounds of ABS air sampling were conducted at the GAO 148 site on December 2 and 3, 2009. Because much of the interior of the complex was susceptible to the influence of wind and weather, the first two rounds of ABS air sampling were conducted inside the large building complex. In addition, the first of the two ABS air sampling rounds conducted inside the structure did not include EPA and Tetra Tech START conducting a simulated activity; instead, several ABS perimeter high and low flow rate air sample sets were arrayed around an area where actual Palmetto Vermiculite, Inc. personnel were conducting work activities. The second indoor ABS air sampling round did involve EPA and Tetra Tech START personnel conducting a simulated activity in the form of sweeping, although Palmetto Vermiculite, Inc. personnel were also conducting work activities in the vicinity during this ABS round. The third round of ABS air sampling was conducted outside and involved EPA and Tetra Tech START personnel conducting a simulated raking activity. A multi-point composite bulk material sample was collected in association with ABS air sampling Round 3, from within the area where the activity occurred, after the round was completed.

Activity-Based Sampling Round 1: Activities Conducted by Palmetto Vermiculite Personnel -

On December 2, 2009, ABS air sampling Round 1 was conducted. This round focused on activities that were being conducted by personnel of Palmetto Vermiculite, Inc. These activities included bagging of materials and moving materials using a hand cart and a forklift. The activity area was located inside the central portion of the large building complex at the GAO 148 site, adjacent to the southeastern side of the structure.

Activity-Based Sampling Round 2: Sweeping -

On December 2, 2009, ABS air sampling Round 2 was conducted and involved Tetra Tech START participants sweeping an area of concrete floor located inside the central portion of the large building complex. The activity area was located adjacent to the northwestern side of the structure, amid hoppers and other machinery during normal times of operation.

Activity-Based Sampling Round 3: Raking -

On December 3, 2009, ABS air sampling Round 3 was conducted and involved Tetra Tech START participants raking in a low area located in the northern portion of the site, northwest of the large building complex. The activity area consisted of bare ground littered with gravel and debris and sparsely covered with low vegetation. At the end of ABS air sampling Round 3, a five-point composite bulk material sample was collected from within the area that was raked.

Additional Bulk Material Sampling
Four additional bulk material samples were collected on December 3, 2009 from locations within the large building complex. All four samples were grab samples collected from separate piles of what was reportedly concentrated vermiculite from various sources.

Follow-up Site visit on March 21, 2011
A follow-up site visit was made on March 21, 2011, to determine if additional sampling was warranted. After viewing the site and previous sampling locations, the EPA OSC concluded that the activities of the December 2009 sampling event adequately addressed site conditions.

SAMPLE RESULTS

Activity-Based Sampling Round 1: Activities Conducted by Palmetto Vermiculite Personnel –
The results for all five of the ABS perimeter air samples show positive Phase Contrast Microscopy Equivalent (PCME) results for asbestos. The results for sample G148-AB1-PL-02 show positive PCME results for total asbestos (2.3E-02 s/cc), total amphibole (2.3E-02 s/cc), actinolite (1.1E-02 s/cc), and Libby amphibole (1.2E-02 s/cc). The results for field duplicate sample G148-AB1-PL-02-DUP show positive PCME results for total asbestos (1.9E-02 s/cc), total amphibole (1.9E-02 s/cc), actinolite (2.0E-03 s/cc), and Libby amphibole (1.7E-02 s/cc). The results for sample G148-AB1-PL-04 show positive PCME results for total asbestos (3.9E-03 s/cc), total amphibole (3.9E-03 s/cc), anthophyllite (9.7E-04 s/cc), and Libby amphibole (2.9E-03 s/cc). The results for sample G148-AB1-PL-06 show positive PCME results for total asbestos (4.9E-03 s/cc), total amphibole (4.9E-03 s/cc), actinolite (3.0E-03 s/cc), and Libby amphibole (2.0E-03 s/cc). Finally, the results for sample G148-AB1-PL-08 show positive PCME results for total asbestos (3.3E-02 s/cc), total amphibole (3.3E-02 s/cc), actinolite (3.2E-02 s/cc), and Libby amphibole (9.8E-04 s/cc).

Activity-Based Sampling Round 2: Sweeping -
The results for ABS backpack low volume sample G148-AB2-AL-18 show nondetects for all PCME structures listed. In contrast, the results for ABS backpack field duplicate sample G148-AB2-AL-18-DUP show positive PCME results for total asbestos (4.0E-03 s/cc), total amphibole (4.0E-03 s/cc), anthophyllite (9.9E-04 s/cc), and Libby amphibole (3.0E-03 s/cc). Of the four ABS perimeter upwind and downwind low volume air samples that were analyzed, the results for one air sample designated as downwind (G148-AB2-PL-14) show nondetects for all PCME structures listed (see Appendix B, Table 8). The results for the three remaining ABS perimeter upwind and downwind air samples that were analyzed (G148-AB2-PL-10, G148-AB2-PL-12, and G148-AB2-PL-16) show positive PCME results. The results for sample G148-AB2-PL-10 show positive PCME results for total asbestos (4.0E-03 s/cc), total amphibole (4.0E-03 s/cc), actinolite (2.0E-03 s/cc), anthophyllite (9.9E-04 s/cc), and Libby amphibole (9.9E-04 s/cc). The results for sample G148-AB2-PL-12 show positive PCME results for total asbestos (1.0E-02 s/cc), total amphibole (1.0E-02 s/cc), actinolite (1.0E-03 s/cc), anthophyllite

(1.0E-03 s/cc), and Libby amphibole (8.0E-03 s/cc). Finally, the results for sample G148-AB2-PL-16 show positive PCME results for total asbestos (7.7E-03 s/cc), total amphibole (7.7E-03 s/cc), actinolite (9.7E-04 s/cc), and Libby amphibole (6.8E-03 s/cc).

Activity-Based Sampling Round 3: Raking -
The results for the ABS backpack high volume air sample that was analyzed (G148-AB3-AH-28) show nondetects for all PCME structures listed). The results for all four of the ABS perimeter upwind and downwind high volume air samples that were analyzed show nondetects for all PCME structures listed. The results for bulk material sample G148-AB3-B-35 indicate that asbestos was not detected. The nondetect asbestos results for this sample are consistent with the nondetect asbestos results for the air samples collected during ABS air sampling Round 3.

Additional Bulk Material Samples
All four samples were grab samples taken from separate piles of what was reportedly concentrated vermiculite from various sources. While all four samples were analyzed for asbestos using PLM analysis, three of the samples (G148-BS-31, G148-BS-32, and G148-BS-33) were also analyzed for asbestos using Transmission Electron Microscopy (TEM) analysis. The PLM results for the four bulk material samples indicate that asbestos was not detected. In addition, the TEM results for bulk material samples G148-BS-31, G148-BS-32, and G148-BS-33 (Appendix B, Table 13) also indicate that asbestos was not detected. Non-fibrous materials of the types "SiAlMg M+", "K, Potassium Matrix", and "Fe, Iron Oxide" were identified in all three samples analyzed using TEM analysis.

3.0 Next Steps

The analytical information was forwarded to EPA's Technical Services Section (TSS) for review. While both ABS Round 1 and ABS Round 2 had detections for asbestos, both ABS Round 1 and ABS Round 2 were indoor sampling events in an active work place.

The data from ABS Round 1 and 2 were compared to EPA's reasonable maximum exposure and central tendency excess lifetime cancer risk estimates and the Occupational Safety and Health Administration's PEL for asbestos of 0.1 f/cc. The potential cancer risks associated with indoor asbestos within the structure were estimated to be equal or greater than the upend end EPA's risk range. However, none of the air samples had airborne asbestos concentrations that exceeded the OSHA occupational standard. All the samples taken outside of the work-place, showed non-detect for asbestos.

Palmetto Vermiculite, Inc. already participates in the State of South Carolina's airborne asbestos monitoring program.

Based on the finding of this investigation, no further action is planned by R4 ERRB at this time.

DSC concur 11/29/11

11/30/11